

DISTRIBUTION CHANNELS FOR SHEEP AND GOAT MILK PRODUCTS

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Abstract: *Producing high-quality dairy produce from sheep and goat milk for the agri-food market requires proper managerial measures in technological processing and along distribution channels to meet consumers' preferences. Depending on the sales channel – modern trade, traditional trade, or agri-food market – it is suggested, for the efficiency of integrated professional farms, to practice the direct marketing of sheep and goat milk products based on one's own logistics, on the payment of products in advance by loyal consumers to the farmers, on the direct purchase from the farm as well as on the delivery of farm products to the consumer's home depending on age, environment of origin of the customers, preferences, and types of consumption.*

Key words: *milk, processed products, distribution channels*

INTRODUCTION

Technological processing of milk from sheep and goats begins immediately after milking, when it is subjected to the following operations [7,8,11,12]:

- conditioning;
- actual processing.

Preserving the original quality of the milk is important because the bacteria in raw milk can only ensure a destruction of the germs during the first two hours after milking, the temperature being the main factor determining the rapid increase of the number of microorganisms. Limiting the number of germs in milk depends on the initial milk load, on milking management, and on marketing management [1,2,9]:

- health of the cow udder;
- milk contact with sources of contamination;
- milk handling mode;
- milk marketing management;
- milk temperature after milking;
- milk transport system until conditioning;
- milking hygiene conditions;
- milking system used [16,17].

Milk as a raw material for processing is produced both by specialized integrated dairy cow farms [8, 10], and by individual producers, small professional farms and non-professional farms [15]. If, in the first case, there are milk collection and conditioning points on the farms, in the second case, the collected milk must be subjected to a primary conditioning that ensures the maintenance of the initial quality – a mandatory condition in order to obtain high-quality dairy products of sheep's and goat's milk [5,6].

The actual processing of the milk is done in special facilities to limit the development or destruction of germs that endanger the quality of the milk and, ultimately, the health of the consumer, thus increasing its conservability. Two stages are involved in the processing of sheep and goat milk [13,14]:

- normalization/standardization of milk, which consists in correcting the percentage of fat in milk intended for consumption, which must have a certain fat content, established by quality standards:

- it is made by mixing in various proportions with skimmed milk (when the milked milk has a fat content above the established level) or by mixing with fat or very fat milk, sometimes even with cream (when the milked milk has a fat content below the established norm);

- it must be done before any thermal treatments are applied to the milk because the fat separation process is more efficient if the milk is initially heated to 40-45°C, a temperature at which the viscosity of the fat drops considerably compared to the milk plasma;

- pasteurization involves the application of a heat treatment, under certain conditions, which ensures the destruction of common and pathogenic flora without significantly affecting the physical, chemical and biological structure of the milk:

- it must ensure the destruction of the tuberculosis bacillus and the entire flora in proportion to 99.9% in order for the milk to meet the sanitary standards: the resistance of pathogenic germs varies within narrow temperature limits (60-80°C) so that, taking the tuberculosis bacillus as a standard – which is destroyed in 105-150 seconds at 62°C and in 2-3 seconds at 80°C) – by destroying it, pathogenic bacteria and viruses are also destroyed;

- destroys vitamins like B6 (1-5%), B9 (3-5%), B12 (1-10%), B1 (10%) and C (5-20%); [9]

- does not destroy heat resistant staphylococcal toxins. [3,4]

MATERIALS AND METHODS

Milk as a raw material for processing is produced, on one hand, by specialized integrated dairy cow farms and, on the other hand, by individual producers, small professional farms and non-professional farms. After conditioning, actual processing and transformation into dairy products, it is distributed for capitalization through several distribution channels that have been analysed within the framework of this study. The aim of the current study was to find concrete, optimal solutions for both integrated farms and small professional farms of the milk chain to improve the distribution systems and the utilization in good conditions of the finished milk products to satisfy the needs of the types of consumers from the entire chain of production, processing and marketing of sheep and goat milk and dairy products.

RESEARCH RESULTS

The distribution of milk and milk products is done according to the sales channels of the market according to the type of the market:

- modern trade on an organized market, with imports and exports of dairy products;
- traditional trade, local trade networks, convenience stores;
- HoReCa system, restaurants;
- on agri-food markets integrated in the milk chain, where the structure of the portfolio of sheep and goat milk products can vary greatly depending on the diversity and offer of products, with increased emphasis on cheeses from the processing of sheep and goat milk.

The main four distribution channels of sheep milk products and the sheep milk products distributed by them in the analysed market are shown in Table 1.

Table 1.

Distribution channels of distributed sheep's milk products

Modern trade	Traditional trade	HoReCa system	Agro-food markets
Acidophilic products: - telemea cheese; -yogurt	Fresh milk products Acidophilic products - bellows cheese - cheese;	Fresh products: - telemea cheese Acidophilic products: -ripened telemea cheese -cheese -butter	Fresh products: - telemea cheese - yogurt - milk Acidophilic products: - aged telemea cheese - cheese

The producers of milk and milk products – specialized companies on the Romanian market such as Delaco, Five Continents, Hochland, La Dorna, and Président, as well as supermarket chains such as Carrefour, Kaufland, Lidl, or Mega Image – process sheep's milk, but the most varied portfolio of goat milk and goat milk products is from the processor Olympus Lactate Romania, which offers consumers aged goat telemea, goat butter, goat kefir, goat milk, goat organic butter, goat telemea, goat yogurt, and organic goat milk. Some branded dairy products produced by large companies as ecological products are guaranteed to be obtained in this way (cheese, curd, cheese, milk, butter, curd) in a certain way, excluding the use of synthetic chemical products in the environment where comes from the food from which they were produced. In order for a sheep's or goat's milk product to receive this mark and to be marketed, it must result from a production method in which:

- there is a production control system;
- a certification system is implemented;
- synthetic chemical products are not used;
- the use of artificial inputs is limited;
- natural inputs are privileged;
- a land conversion plan is respected;
- specific technologies for obtaining fodder are used;
- are technologies for ecological breeding of sheep and goats;
- capitalization of natural processes is harmonized, protecting pastures and natural environmental factors and preserving biodiversity.

We suggest the implementation of measures in integrated professional farms to improve distribution using direct marketing of sheep's and goat's milk products through:

- advance payment of products by consumers;
- purchasing products directly from the farm;
- online order of products;
- delivery to the consumer's home;
- sale at the stall at the entrance to the farm;
- selling products at the agri-food market.

In order to attract as many consumers of sheep and goat milk products as possible, farms can propose new ways of purchasing their products:

- telemea cheese in burnt clay plate or reed basket;
- cheese in fir bark.

A plate, basket, beautiful, original and solemn, can be given as an anniversary gift but also as a decorative object, as a cultural symbol of traditions. So, as some specialists

note, nothing is more beautiful and practical than a piece of telemea in a durable clay plate! [17].

Consumer behaviour has undergone changes over time due to the insufficient and little varied quantities of dairy products on the market, for these reasons there is a return to the “agricultural market” sales channel, to the detriment of modern trade (supermarkets) and traditional (the small neighbourhood grocery stores) so that the profile of the consumer of processed sheep’s milk products according to preferences, the fat content of matured cheese and its share in weekly consumption is as follows in Arad County:

- 10.50% of urban residents over the age of 18 consume semi-fat cheese with a fat content below 20% and 15.50% of urban respondents over the age of 18 consume semi-fat cheese with a fat content of 40-60%;

- 23.0% of consumers over the age of 18 consume cheese daily and 29.50% of consumers aged 35-44 consume cheese daily;

- a small number of respondents (2.50%) declared that they prepare their cheese at home and 19.0% of consumers do not know in which product category the consumed cheese falls in terms of fat content;

The share of rural respondents who said they consume cheese 3 times a week was 35.70%, followed by 32.60% who consume it twice a week and those who said they consume it at least once a week cheese 28.40%. A number of 2.70% stated that they do not consume such a product and 0.60% stated that they consume other types of cheese. Due to the large share of sheep herds in the area under analysis, it can be stated that in the rural environment almost all respondents consume this product matured from sheep’s milk.

CONCLUSIONS

Preserving the initial quality of milk and dairy products distributed on the market is important because milk bacteria can only ensure the destruction of germs during the first two hours after milking; temperature is the main factor that determines the rapid growth of microorganisms in milk. In order to preserve the quality of the products and improve the distribution channels, direct marketing of processed dairy products is suggested, i.e., purchasing the products directly from the farm or delivering them to the consumer’s home or selling the products at the agri-food market. Consumer preferences for processed milk products vary according to age and area of origin: 29.50% of consumers aged 35-44 consume cheese on a daily basis, while 15.50% of urban youth prefer 40-60% fat cheese. Almost all respondents from rural areas consume these products at least once a week, the share of those who consume them three times a week being 35.70%.

REFERENCES

- [1]. AVAMESCU DANIELA, PETROMAN I., AVRAM E., PETROMAN CORNELIA, BĂLAN IOANA, IOSIM IASMINA, ORBOI MANUELA DORA, MARIN DIANA, 2013, Quality of raw milk from different dairy farms, Journal of Food Agriculture and Environment
- [2]. AVRAMESCU DANIELA, BODNAR K., PETROMAN I., PETROMAN CORNELIA, BENK A., MARIN DIANA, BĂLAN IOANA, 2012, Relationship between age of sheep and quantity of milk, Lucrări Științifice Management Agricol, 14(2)
- [3]. BATES P., 2012, External Parasites of Small Ruminants: A Practical Guide to their Prevention and Control. Wallingford – Cambridge, MA: CABI
- [4]. BENSON G.A., 2011, Roles and Responsibilities of the Manager. In J. W. Fuquay, P. E. Fox & P. L. H. McSweeney (eds.), Encyclopedia of Dairy Sciences, Volume 1 (481-

485). London: Elsevier

[5]. **BERGER Y.M.**, 2012, Breeds of Seep for Commercial Milk Production

[6]. **CHANDAN R.C., WHITE C.H., KILARA A., HUI Y.H.** (Eds), 2006, Manufacturing Yogurt and Fermented Milks, Ames, IO: Blackwell Publishing

[7]. **CSIZMADIA ANDREA ȘTEFANA, ARMAȘ ANA GINA, PETROMAN CORNELIA**, 2021, Possibilities for choosing optimal sheep holding systems for milk production, *Lucrări Științifice Management Agricol*, 23(3)

[8]. **IENOVAN DANIELA, PETROMAN CORNELIA, PETROMAN I., MARIN DIANA**, 2017, Study regarding the dynamic of the milk products prieses, *Lucrări științifice Management Agricol*, 19(3)

[9]. **MEUNIER-GODDICK L., SANDRA S.**, 2011, Liquid Milk Products: Pasteurized Milk. In J. W. Fuquay, P. E. Fox & P. L. H. McSweeney (eds.), *Encyclopedia of Dairy Sciences*, Volume 3 (273-280). London: Elsevier.

[10]. **NEAGU IULIANA, CULEA C., PETROMAN I.**, 2007, Creșterea animalelor, Editura Eurostampa, Timișoara, 80-81

[11]. **PETROMAN CORNELIA**, 2010, Procesarea materiilor prime agricole, Editura Eurostampa, Timișoara

[12]. **PETROMAN CORNELIA, BIDIREAC IONELA CRISTINA, PETROMAN I., ȘUCAN MOISINA, MARIN DIANA, TURC B., MERCE IULIANA, CONSTANTN ELENA CLAUDIA**, 2015, The impact of education on the behavior of consumer of animal origin food products, *Procedia-Social and Behavioral Sciences*, 429-433

[13]. **PETROMAN I.**, 2007, Managementul sistemelor de creștere și exploatare a animalelor, Editura Eurostampa, Timișoara

[14]. **TRICA ANA GINA, TĂRTĂREANU MIHAELA, MARIN DIANA, PETROMAN CORNELIA, PETROMAN I.**, 2018, Pastoral and agricultural landscapes from Caraș-Severin. *Lucrări Științifice Management Agricol*, 20(1), 133-137

[15]. **TRICA ANA GINA, PETROMAN I., PETROMAN CORNELIA, TĂRTĂREANU MIHAELA, SAUER MARIA**, 2018, Study on meat-milk productive performances in Romanian Rațka sheep under extensive production, *Lucrări Științifice Management Agricol*, 20(1)

[16]. **TRONSTAD R.**, 1995, Direct Marketing Alternatives. In *Direct Farm Marketing and Tourism Handbook* (3-7). Tucson, AZ: University of Arizona.

[17]. **ILO – ASEAN**, 2019, Ghid de bune practici pentru producătorii de produse artizanale. Chișinău: Organizați Internațională a Muncii